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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,970	02/18/2002	James D. Hansen	56512US002	6548

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EXAMINER

BUMGARNER, MELBA N

ART UNIT	PAPER NUMBER
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3732

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/078,970

Applicant(s)

HANSEN ET AL.

Examiner

Melba Bumgarner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 19, 20 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Highgate et al. (4,565,722). Highgate et al. disclose a dental separator, the separator dimensioned such that it *can be* inserted between adjacent teeth (figures 1,2), when inserted, the separator exhibits an increase in compressive force, wherein the separator exerts sufficient force on the contact surfaces (column 2 line 20). Patentable weight is not given to the intended use of the separator. As to claims 3 and 4, the separator is a hydrophilic polymer that expands (column 2 line 58).

3. Claims 1, 13, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by von Weissenfluh (5,421,725). Von Weissenfluh discloses a dental separator, the separator dimensioned such that it can be inserted between adjacent teeth 2, 3, when inserted between adjacent teeth, the separator exhibits an increase in compressive force, wherein the separator exerts sufficient force on the adjacent teeth (figure 3). Patentable weight is not given to the intended use of the separator. As to claims 13 and 16, the separator comprises a shape memory polymer (column 2 line 20). Von Weissenfluh discloses a method for separating a pair of adjacent teeth comprising inserting a separator between the teeth, wherein upon insertion the separator exhibits

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an increase in compressive force and expands to exert sufficient force on the adjacent teeth.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable Highgate et al. Highgate et al. disclose a separator that shows the limitations as described above; however, they do not show the measure of increase in compressive force, increase in weight and increase in volume. Highgate et al. state that the changes in dimensions may depend upon the amount of liquid absorbed and a dimension may increase by a factor of up to 5. The examiner asserts that the claimed properties are present in the separator of Highgate et al. to the same extent even though they are not explicitly stated. It is held to be an obvious matter of choice to one of ordinary skill in the art as to the use of a specific type of known hydrophilic polymer. The specific hydrophilic polymer is not critical to the claimed invention.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Highgate et al. in view of Rawls et al. (5,5,27,181). Highgate et al. disclose a separator that shows the limitations as described above; however, they do not show a radio-opaque additive. Rawls et al. teach a separator comprising a radio-opaque additive (column 5 line 63). It would have been obvious to one having ordinary skill in the art at

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the time the invention was made to modify the separator of Highgate et al. to have radio-opaque additive. One would have been motivated to make such a modification to have a separator that can be viewed on a radiograph in the event of aspiration by a patient as taught by Rawls et al.

7. Claim 14, 15, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Weissenfluh in view of Langer et al. (6,388,043). Von Weissenfluh discloses a separator that shows the limitations as described above; however, Von Weissenfluh does not show the shape memory material comprising a metal alloy. Langer et al. teaches dental appliance of shape memory polymers and shape memory metal alloy including NiTi as an alternative in the art (column 1 line 20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use metal alloy or polymer since both materials have properties of shape memory. The specific material is not critical to the claimed invention. Von Weissenfluh discloses a method for separating a pair of adjacent teeth comprising inserting a separator comprising a shape memory material between the teeth, wherein upon insertion the separator exerts sufficient force on the adjacent teeth; however, the separator is light activated. Langer et al. teach shape memory material that is heat activated. It would have been obvious to one having ordinary skill in the art to have the shape memory material be heat activated so that the increase in temperature in the mouth would activate the material. It is held to be an obvious matter of choice as to the specific property of a known material of the separator. The specific force is not critical to the claimed invention.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over von

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Weissenfluh. Von Weissenfluh discloses a method that shows the limitations as described above; however, von Weissenfluh does not show the measure of increase in compressive force. The examiner asserts that the claimed force is present the separator of von Weissenfluh to the same extent even though they are not explicitly stated. The specific increase in force is not critical to the claimed invention.

***Allowable Subject Matter***

9. Claims 19, 20, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

10. Applicant's arguments filed December 2, 2003 have been fully considered but they are not persuasive. The prior art show the limitations of the claims. The prior art show that the "separator" is dimensioned such that it can be inserted between adjacent teeth. Performing such a function is not a positive limitation but only requires the ability to so perform. The separator can expand, given the material and increase in dimension, to exhibit an increase in compressive force. The shape of the separator is not in the claim limitations. The invention as claimed does not result in any structural difference from the prior art to patentably distinguish the claimed invention from the prior art.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Asher (5,573,400) is cited to show the state of the art with respect to dental separator.

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12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melba Bumgarner whose telephone number is 703-305-0740. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on (703) 308-2582. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.



Melba Bumgarner  
Patent Examiner



KEVIN SHAVER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700